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EXAMINER

CHEN, TSE W

ART UNIT PAPER NUMBER

2116

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/015,533

Applicant(s)

FISH ET AL.

Examiner

Tse Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. It is hereby acknowledged that the following papers have been received and placed of record in the file: Amendment dated July 29, 2005.
2. Claims 1-20 are presented for examination.

#### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

[a] A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5-8 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harmer, US patent 5,835,760 in view of Extensible Firmware Interface Specification – Draft for Review, hereinafter EFIS.

5. In re claim 1, Harmer discloses a system [200] comprising:
  - Central processor [col.13, ll.40-41; associated with host].
  - A non-volatile memory [rom] coupled with the central processor and storing platform firmware [bios] [col.8, ll.48-49].
  - A machine-readable medium [mass memory storage; e.g., 114] coupled with the central processor, the machine-readable medium to be used in initializing the operating environment for the system upon power up [col.13, ll.45-47; expansion bios needed to run devices in operating environment], the machine-readable medium comprising a first set of instructions [128] [col.9, ll.49-54] forming at least a portion of the operating environment [col.9, ll.26-29; to run device], and a second set of instructions [120] [col.9,

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1.40] defining one or more firmware extensions [124] to enable the system to access the first set of instructions [124, a component of 120, accessed 128], wherein the one or more firmware extensions comprise a self-describing media module [col.9, ll.16-29; col.11, ll.34-36; system reads self describing 124 component to access other part of code such as 128 and 134 in order to run device].

6. Harmer did not disclose the details of an extensible firmware interface.

7. EFIS teaches an extensible firmware interface [EFI] comprising data tables having platform-related information [Page. 299, ll.3-7], a loader for an operating environment [Page 9, fig.1-1; Page 104, Section 4.4] and boot and runtime service calls available to the operating environment [Page 1, ll.3-4], wherein the EFI enables extension of platform firmware by loading driver and application images, which when loaded, have access to all EFI defined runtime and boot services [fig.2-1; Page 13, ll.1-3].

8. The motivation for incorporating the External Firmware Interface includes the benefit of abstraction, such that code may be written for a variety of hardware devices without having explicit knowledge of the specifics for each device [EFIS: Page 4, ll.3-5].

9. Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate EFI as taught by the EFIS with the system disclosed by Harmer for the benefit of permitting faster and easier development of code for a variety of hardware devices.

10. As to claim 2, Harmer discloses the machine-readable medium comprises a hard disk platter [col.13, ll.47-50].

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11. As to claim 3, Harmer discloses the one or more firmware extensions comprise a file system driver to support a file system format not supported by the platform firmware [col.9, ll.49-54; 132 necessary to run device with 130].

12. As to claim 5, Harmer discloses the central processor comprises a central processing unit housed in a single chip [col.1, ll.31-35].

13. As to claim 6, Harmer discloses a volatile memory [ram] [col.13, l.41]; and a motherboard coupling the volatile memory, the non-volatile memory and the machine-readable medium with the central processing unit [fig.9; motherboard by definition connects the main components of a computer system; although not explicitly mentioned, it is considered inherent to the operation of the system].

14. As to claim 7, Harmer discloses self-describing machine-readable medium [114; col.9, ll.49-54; reads self describing 124 component to access other part of code such as 128 and 134 in order to run device] comprising:

- A first set of instructions [120] in a first portion of the medium [fig.5] [col.9, ll.49-54] defining operations for enabling a machine to access a second set of instructions [128] in a second portion of the medium [fig.5] [col.11, ll.34-36; 124, a component of 120, accesses 128] comprising at least a portion of an operating system stored on the machine-readable medium in a format that is unreadable by the machine before the machine loads the first set of instructions [col.9, ll.49-54; reads self describing 124 component to access other part of code such as 128 and 134 in order to run device with 130].
- The second set of instructions [128] [fig.5].

15. Harmer does not disclose incorporating an extensible firmware interface.

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16. EFIS teaches wherein the first set of instructions comprises at least one extensible firmware interface image [EFI] providing a software abstraction enabling access to the second portion of a medium, wherein platform firmware of the machine does not have a mechanism to access the second portion of the medium prior to accessing the EFI image [Page 1, ll.3-4; fig.2-1; Page 13, ll.1-3]

17. The motivation for incorporating the EFI includes the benefit of abstraction, such that code may be written for a variety of hardware devices without having explicit knowledge of the specifics for each device [Page 4, ll.3-5].

18. Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate an EFI as taught by the EFIS with the system disclosed by Harmer for the benefit of permitting faster and easier development of code for a variety of hardware devices.

19. As to claim 8, Harmer discloses the first set of instructions comprise one or more extensions to platform firmware capability [col.13, l.63 - col.14, l.2].

20. As to claim 17, Harmer and EFIS disclose each and every limitation of the claim involving the means thereof [machines readable medium relates to mass storage means] as discussed above in reference to claims 1 and 7.

21. In re claim 18, Harmer discloses the mass storage means comprises an optical disk [compact disk] [col.13, ll.47-50].

22. In re claim 19, Harmer discloses the means for extending platform firmware capabilities comprise a file system driver to support file system format not supported by the platform

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firmware [col.9, ll.49-54; reads self describing 124 component to access other part of code such as 128 and 134 in order to run device with 130].

23. Claims 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harmer and EFIS as applied to claims 1 and 17 above, and further in view of BIOS Updates, hereinafter BIOSU.

24. Harmer and EFIS disclose each and every limitation as discussed above in reference to claims 1 and 17. Harmer did not disclose a non-volatile memory that comprises a random access non-volatile memory.

25. BIOSU teaches the non-volatile memory comprises random access non-volatile memory [eeprom] [Paragraph 2, ll.5-6].

26. The motivation for using a random access non-volatile memory, in this case an EEPROM, allows for "a ROM that can be erased and re-written" [BIOSU: Paragraph 3, l.3]. This will allow for updates to be made to the BIOS without requiring physical replacement of ROM.

27. Accordingly, it would have been obvious to a person of ordinary skill in the art to modify the device disclosed by Harmer to incorporate a non-volatile random access memory as described by BIOSU for the benefit of providing a circuit housing a BIOS that is more readably modifiable.

28. Claims 9-11 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harmer and EFIS as applied to claims 7 and 8 above, and further in view of Rakavy et al., US Patent 5978912, hereinafter Rakavy.

29. In re claim 9, Harmer discloses the portion of an operating system comprises operating data that may include, but is not limited to, system configuration information, data, text,

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passwords, or any other information that may provide some purpose during the start-up of the system [col.16, ll.20-24]. Harmer did not disclose explicitly the operating data includes an operating system loader.

30. Rakavy teaches the POST reads a block of data from a predetermined location from the boot device, usually the hard disk or a diskette drive, into memory, and passes control to the program in that data block. This program, known as a bootstrap loader, then loads a larger program into memory. If the larger program is properly loaded into memory the boot program passes control to it. The operating system is then initialized and gains control of the CPU [col.2, ll.27-34].

31. Rakavy provides this as background for the methodology of the typical startup procedure of an IBM compatible personal computer" [col.1, ll.64-66].

32. This standard behavior would accordingly suggest that it would be obvious to a person of ordinary skill in the art that, though Harmer does not specifically mention an operating system or bootstrap loader, his invention would follow this standard startup procedure and provide such a program because it serves an important purpose during the start-up of the system.

33. As to claim 10, Harmer discloses the one or more extensions to platform firmware capability comprise a file system driver to support a file system format used to store at least a portion of the second set of instructions [col.11, ll.34-36; the file system described consists of giving the first portion of the expansion BIOS the ability to find and read the second portion of the expansion BIOS].

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34. As to claim 11, Harmer discloses the one or more extensions to platform firmware capability comprise glyphs that represent a language [col.15, ll.57-62; glyphs are graphical in nature].

35. In re claim 13, Harmer discloses a machine-implemented method for extending platform firmware capabilities [col.8, ll.41-44], the method comprising:

- Loading on a system one or more firmware extensions [col.8, ll.41-44] from a boot media [col.46-47].
- Booting the system [col.13, ll.53-56].
- Loading and running operating data [that] may include, but is not limited to, system configuration information, data, text, passwords, or any other information that may provide some purpose during the start-up of the system from the boot media [col.16, ll.20-24] using the one or more loaded firmware extensions [col.15, ll.49-53], the one of more loaded firmware extensions [124] enabling the system to access the operating data from a portion of the boot media inaccessible to the unextended platform firmware [col.9, ll.49-54; 124 component necessary to access other part of code such as 128 and 134 in order to run device with 130].

36. Harmer did not disclose explicitly the loading and running an operating system loader from the boot media using the one or more loaded firmware extensions.

37. Rakavy teaches the POST reads a block of data from a predetermined location from the boot device, usually the hard disk or a diskette drive, into memory, and passes control to the program in that data block. This program, known as a bootstrap loader, then loads a larger program into memory. If the larger program is properly loaded into memory the boot program

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passes control to it. The operating system is then initialized and gains control of the CPU [col.2, ll.27-34].

38. Rakavy provides this as background for the methodology of the typical startup procedure of an IBM compatible personal computer [col.1, ll.64-66].

39. This standard behavior would accordingly suggest that it would be obvious to a person of ordinary skill in the art that, though Harmer does not specifically mention an operating system or bootstrap loader, his invention would follow this standard startup procedure and provide such a program because it serves an important purpose during the start-up of the system.

40. Harmer and Rakavy do not disclose firmware extensions being compatible with an extensible firmware interface.

41. EFIS teaches an extensible firmware interface [EFI] comprising data tables having platform-related information [Page 299, ll.3-7], a loader for an operating system [Page 9, fig. 1-1; Page 104, Section 4.4] and boot and runtime service calls available to the operating system [Page 1, ll.3-4], wherein the EFI enables extension of platform firmware by loading driver and application images, which when loaded, have access to all EFI defined runtime and boot services, the system having an EFI architecture [fig.2-1; Page 13, ll.1-3].

42. The motivation for incorporating the EFI includes the benefit of abstraction, such that code may be written for a variety of hardware devices without having explicit knowledge of the specifics for each device [EFIS: Page 4, ll.3-5]

43. Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of invention to render the firmware extensions to be compatible with an EFI as taught by

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the EFIS with the system disclosed by Harmer for the benefit of permitting faster and easier development of code for a variety of hardware devices.

44. As to claim 14, Harmer discloses loading one or more firmware extensions from a boot media during a system boot in such a manner that abstracts a mass storage device containing the boot media [col.13, ll.47- 50]. Harmer does not disclose the method for this abstraction as incorporating a block input/output protocol. Rakavy further teaches POST reads a block of data from a predetermined location from the boot device, usually the hard disk or a diskette drive [col.2, ll.27-29].

45. As to claim 15, Harmer further discloses the one or more firmware extensions comprise a file system driver to support a file system format used to store data on the boot media [col.11, ll.34-36; the file system described consists of giving the first portion of the expansion BIOS the ability to find and read the second portion of the expansion BIOS].

46. As to claim 16, Harmer further discloses: the one or more firmware extensions further comprise glyphs that represent a language [col.15, ll.57-62, glyphs are graphical in nature].

47. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rakavy, Harmer and EFIS as applied to claim 9 above, and further in view of Unicode Technical Report #10, hereinafter UTR.

48. Harmer discloses the general concept of storing information required during the start-up of the system may include a variety of operating data, text, or other information that increases the functionality of the system during the start-up of the system [col.15, ll.54-57]. Harmer did not disclose the inclusion of a Unicode collation module as an extension to a system that may be stored on a mass memory storage device.

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49. However, UTR shows a Unicode Collation Algorithm is a well-known method for providing alphabetic, diacritic and case ordering [Page 2; Section Summary; Paragraph 3, ll.4-6].

50. The motivation behind ordering/collation is that sorted entities are far more searchable than ones that are not.

51. Sorting is a fundamental task in computers and it would be obvious to a person of ordinary skill in the art to modify Harmer to incorporate a Unicode collation algorithm as a method of increasing the functionality of a computer system without increasing the cost of the peripheral device and/or the system [Harmer: col.15, ll.52-53].

#### *Response to Arguments*

52. Applicant's arguments dated July 29, 2005 have been considered but are moot in view of the new ground(s) of rejection.

#### *Conclusion*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tse Chen whose telephone number is (571) 272-3672. The examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tse Chen  
October 26, 2005

  
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